

Title (en)
Workpiece feeding apparatus for transfer press machine

Title (de)
Vorrichtung zum Zuführen von Werkstücken für eine Presse

Title (fr)
Dispositif d'alimentation de pièces pour une presse

Publication
EP 1402971 A1 20040331 (EN)

Application
EP 03255758 A 20030915

Priority
JP 2002271494 A 20020918

Abstract (en)
The machine has a set of carriers (25a-g) that are supported by guide beams (23) to allow movement in a direction of a press line (L). Cross bars (11) provided with work piece holder is attached to the carriers. A carrier mechanism (28) feeds carriers located on an upstream side in the direction of the press line. A carrier mechanism (30) feeds carriers located downstream in the press line direction.

IPC 1-7
B21D 43/05

IPC 8 full level
B21D 43/05 (2006.01); **B30B 13/00** (2006.01)

CPC (source: EP US)
B21D 43/055 (2013.01 - EP US)

Citation (search report)
• [XY] US 4981031 A 19910101 - SCHNEIDER FRANZ [DE], et al
• [XY] EP 0315381 A2 19890510 - ISHIKAWAJIMA HARIMA HEAVY IND [JP]
• [XY] PATENT ABSTRACTS OF JAPAN vol. 017, no. 592 (M - 1502) 28 October 1993 (1993-10-28)
• [AD] PATENT ABSTRACTS OF JAPAN vol. 1999, no. 03 31 March 1999 (1999-03-31)

Cited by
CN105235266A; EP1985391A1; US7841274B2

Designated contracting state (EPC)
DE ES FR GB IT

DOCDB simple family (publication)
EP 1402971 A1 20040331; EP 1402971 B1 20060705; CA 2440962 A1 20040318; CA 2440962 C 20071023; DE 60306598 D1 20060817; DE 60306598 T2 20070621; ES 2268288 T3 20070316; JP 2004106012 A 20040408; JP 4269612 B2 20090527; MX PA03008257 A 20040903; US 2004177669 A1 20040916; US 7047790 B2 20060523

DOCDB simple family (application)
EP 03255758 A 20030915; CA 2440962 A 20030915; DE 60306598 T 20030915; ES 03255758 T 20030915; JP 2002271494 A 20020918; MX PA03008257 A 20030912; US 66322403 A 20030916